CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"Asana" is a registered trademark of DuPont.

Corporate MSDS Number : DU002101

Company Identification

MANUFACTURER/DISTRIBUTOR

DuPont
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-7515
Transport Emergency : CHEMTREC 1-800-424-9300
Medical Emergency : 1-800-441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
ESFENVALERATE ((S)-CYANO(3-PHENOXYPHENYL)METHYL(S)-4-CHLORO-ALPHA-(1-METHYLETHYL)BENZENEACETATE)	66230-04-4	8.4
INERT INGREDIENTS		91.6
(INCLUDES PERCENTAGES OF THE FOLLOWING:)		
XYLENE	1330-20-7	<3
ETHYLBENZENE	100-41-4	<1

* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Emergency Overview

WARNING! May be fatal if swallowed. Harmful if inhaled. Do not get in eyes, on skin, or on clothing.

Potential Health Effects

HUMAN HEALTH EFFECTS OF EXPOSURE

Based on animal studies the following effects may occur:

By eye contact, the product is considered minimally irritating.

Overexposure to Esfenvalerate by skin contact may initially include transient (several minutes up to approximately 24 hours) persistent burning or prickling sensation which may be accompanied by visible irritation or rash.

By inhalation, esfenvalerate in this product may produce acute transient nervous system effects at high doses. Based on Inert Ingredients, this product may cause CNS (Central Nervous System) depression.

By ingestion, esfenvalerate in this product may produce acute transient nervous system effects. Based on Inert Ingredients, this product may cause CNS depression. Ingestion of product may result in vomiting. Aspiration (breathing) of vomitus into the lungs must be avoided as even small quantities may result in aspiration pneumonitis.

Individuals with preexisting diseases of the liver, kidneys, skin, lungs, bone marrow, central or peripheral nervous system may have increased susceptability to the toxicity of excessive exposures.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Get medical attention.

SKIN CONTACT: Wash with soap and water immediately. After drying, apply vitamin E cream or oil if available. If not

(FIRST AID MEASURES - Continued)

available, apply vegetable oil liberally over painful areas. The oil or cream may be used repeatedly until relief is achieved. Get medical help if irritation persists.

INHALATION: Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention.

INGESTION: Do not induce vomiting. If vomiting occurs spontaneously keep head below hips to prevent aspiration of liquid into the lungs. Aspiration of vomitus into the lungs must be avoided because even a small amount may result in aspiration pneumonitis.

Notes to Physicians

If vomiting has not occurred, emesis should be induced with supervision by a physician or professional staff. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before emesis, gastric lavage should be considered following intubaton with a cuffed endotracheal tube.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point	: 66 C (151 F)
Method	: TCC

Combustible. Heating can release vapors which can be ignited.

Hazardous gases/vapors produced in fire are toxic and may include hydrogen cyanide.

Extinguishing Media

Water Spray, Water Fog, Dry Chemical, CO2.

Fire Fighting Instructions

Evacuate personnel to a safe area. Wear self-contained breathing apparatus. Wear full protective equipment. Use water spray. Cool tank/container with water spray.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Accidental Release Measures

CAUTION - COMBUSTIBLE!

LARGE SPILLS: Eliminate potential source of ignition. Wear appropriate respirator and other protective clothing. Shut off source of leak only if safe to do so. Dike and contain. Remove with vacuum trucks or pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand, or other suitable material; place in non-leaking containers and seal tightly for proper disposal. Flush area with water to remove trace residue; dispose of flush solution as above.

SMALL SPILLS: Take up with absorbant material and place in non-leaking containers for proper disposal. Do not use alkaline absorbant.

HANDLING AND STORAGE

Handling (Personnel)

Do not get in eyes, on skin, or on clothing. Avoid breathing vapors or mist. Wash thoroughly after handling. Wash clothing after use. Discard shoes if contaminated. Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

USERS SHOULD: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Storage

Store in a secure, dry and temperate area. Store in original container. Keep container closed when not in use. Do not store near food or feed. Do not use or store around the home. Avoid contact with water.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use only with adequate ventilation. Keep container tightly closed.

Use explosion-proof ventilation as required to control vapor concentrations.

Keep liquid and vapor away from heat, sparks or flame. Surfaces that are sufficiently hot may ignite liquid product even in the absence of sparks or flame. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapors are gone. Do not cut, drill, grind or weld on or near container: even emptied containers can contain expolsive vapors.

Personal Protective Equipment

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and pants
- Chemical-resistant gloves, such as Barrier Laminate or Neoprene Rubber or Nitrile Rubber or Viton.
- Shoes plus socks
- Protective eyewear

Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves, such as Barrier Laminate or Neoprene Rubber or Nitrile Rubber or Viton.
- Shoes plus socks
- Protective eyewear

Exposure Guidelines

Applicable Exposure Limits

ESFENVALERATE

PEL	(OSHA)	: None Established
TLV	(ACGIH)	: None Established
AEL *	(DuPont)	: 2 mg/m3, 8 & 12 Hr. TWA, Skin

XYLENE

PEL	(OSHA)	: 100 ppm, 435 mg/m3, 8 Hr. TWA
TLV	(ACGIH)	: 100 ppm, 434 mg/m3, 8 Hr. TWA, A4 STEL 150 ppm, 651 mg/m3, A4
AEL *	(DuPont)	: 100 ppm, 8 & 12 Hr. TWA 150 ppm, 15 minute TWA

ETHYLBENZENE

PEL	(OSHA)	: 100 ppm, 435 mg/m3, 8 Hr. TWA
TLV	(ACGIH)	: 100 ppm, 8 Hr. TWA STEL 125 ppm Notice of Intended Changes (1998) 100 ppm, 8 Hr. TWA, A3 STEL 125 ppm
AEL *	(DuPont)	: 25 ppm, 8 & 12 Hr. TWA

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

pH	: 5.14 1%V emulsion in Type l reagent water
Odor	: Oily/aromatic
Form	: Liquid
Color	: Straw to light amber
Density	: 7.9 lb/gal @ 20 deg C (68 deg F)

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Decomposition

Hydrogen cyanide may be formed by thermal decomposition or reaction with alkaline materials.

Polymerization

Polymerization will not occur.

(STABILITY AND REACTIVITY - Continued)

Other Hazards

Incompatibility : Avoid heat, flame and contact with strong oxidizing agents.

TOXICOLOGICAL INFORMATION

Animal Data

Acute Oral LD50: 458 mg/kg (rat).

Acute Dermal LD50: >2000 mg/kg (rabbit).

Inhalation, 4-hr LC50: >2.93 mg/L (rat)

Asana XL Insecticide is not a skin irritant or a skin sensitizer, but is a mild eye irritant in animals.

A single dermal exposure to a dose of 2000 mg/kg of esfenvalerate have included ataxia, tremors, constricted pupils and hind limb incoordination. Dermal exposure of guinea pigs and rabbits to esfenvalerate is believed to have resulted in transient burning sensation in a controlled experiment. When diluted "ASANA" XL was applied to the skin of human volunteers, some experienced very slight to mild skin stimulation.

The effects of ingestion of a single dose of esfenvalerate near the LD50 resulted in nervous system changes including splayed gait, tremors, ataxia, and hind limb incoordination. Pathological changes were observed in some peripheral nerves at necrospy. Repeated administration caused excessive grooming and neurological changes such as limb incoordination, unsteady gait, tremors, convulsions, and nonspecific effects such as weight loss. The no-observed-adverse-effect-level (NOAEL) was 2 mg/kg.

Tests with esfenvalerate in animals demonstrate no carcinogenic or developmental toxicity in animals. Reproductive toxicity has not been observed at doses below those causing maternal toxicity. Decreased litter size and decreased weight gain (but no change in reproductive performance) occurred at doses that were also toxic to the parent animals. The NOAEL for parental toxicity, litter size, and weight gain was 75 ppm (4.2-7.3 mg/kg/day).

Esfenvalerate has tested both positive and negative in animals and in various bacterial and mammalian cell cultures for genetic damage. It does not produce heritable genetic damage.

OTHER STUDIES

(TOXICOLOGICAL INFORMATION - Continued)

High exposures to xylene can cause heart stress, anemia, respiratory difficulties, bleeding from mucosal surfaces, liver and kidney effects, and death.

Animal data on xylene show developmental effects only at or near levels producing other toxic effects in the adult animal. Reproductive data on adult animals show no change in reproductive performance. Tests have shown that this material does not cause genetic damage in bacterial or mammalian cell cultures, or in animals. In animal testing, xylene has not caused permanent genetic damage in reproductive cells of mammals (has not produced heritable genetic damage).

ECOLOGICAL INFORMATION

Ecotoxicological Information

PLEASE NOTE:
The following data is for Esfenvalerate Technical.

AQUATIC TOXICITY:

The compound is extremely toxic to fish.
96 Hour LC50, Rainbow Trout: 0.26 ppb
96 Hour LC50, Bluegill Sunfish: 0.26 ppb
96 Hour LC50, Fathead Minnows: 0.18 ppb

AVIAN TOXICITY:

8-Day dietary LC50, Mallard Duck: 5247 ppm
8-Day dietary LC50, Bobwhite Quail: >5620 ppm
LD50, Bobwhite Quail: 381 mg/Kg

DISPOSAL CONSIDERATIONS

Waste Disposal

Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

TRANSPORTATION INFORMATION

Shipping Information

DOT

Proper Shipping Name	: Pesticides, Liquid, Toxic, N.O.S., (Esfenvalerate)
Hazard Class	: 6.1
I.D. No. (UN/NA)	: UN 2902
Packing Group	: III
Marine Pollutant	: (Water or Bulk)

REGULATORY INFORMATION

U.S. Federal Regulations

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute	: Yes
Chronic	: Yes
Fire	: Yes
Reactivity	: No
Pressure	: No

ADDITIONAL REGULATORY INFORMATION

Section 302 Extremely Hazardous Substances: None

CERCLA Reportable Quantity: Xylene (100 lbs)

OTHER INFORMATION

NFPA, NPCA-HMIS

NFPA Rating

Health	: 1
Flammability	: 2
Reactivity	: 0

NPCA-HMIS Rating

Health	: 2
Flammability	: 2
Reactivity	: 0

Personal Protection rating to be supplied by user depending on use conditions.

(Continued)

Additional Information

EPA Reg No. 352-515.

REGULATORY CONTROLS

This product is registered under EPA/FIFRA Regulations. It is a violation of Federal Law to use this product in any manner inconsistent with its labeling. Read and follow all label directions. This product is excluded from listing requirements under EPA/TSCA.

RESTRICTED USE PESTICIDE

For retail sale to and use only by Certified Applicators or persons under their direct supervision and only for those uses covered by the Certified Applicator's certification.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : DuPont
Address : Agricultural Products
Wilmington, DE 19898
Telephone : 800-441-7515

# Indicates updated section.

End of MSDS